

The Builder.

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READERS would scarcely look to a book on "The Practice of Measuring and Valuing Artificers' Work," for an exposition of views on design, and an endeavour to reform generally the architecture of our time. They will find these, however, in the second edition just now published by Weale of Mr. Dobson's volume on the former subject, first issued in 1843, which is edited by Mr. E. L. Garbett, and now takes the title of "The Student's Guide to the Practice of Designing, Measuring, and Valuing Artificers' Works." When asked, in the absence of Mr. Dobson, to add such memoranda to the work as seemed most necessary, the present editor thought the most useful addition he could make would be "a brief account of the present practice of designing the works of each trade, with a view to its improvement." This he has done with acuteness and ability. He has availed himself largely, with due acknowledgment, of the labours of the late Mr. Alfred Bartholomew, whose work on "Practical Architecture" will long keep his name in respectful memory. At starting, Mr. Garbett enforces the useful distinction between "decoration" (gracing, *decor*—grace, beauty) and "ornament." All human work should have decoration, but all need not have ornament.

"By ornament (he says) is properly meant something extraneous to the work, added for the sake of beauty; some thing added, observe, while decoration is only some work added. Thus decoration includes all ornament, but there is plenty of true decoration which is not ornament. That only is ornament which involves either the adding of unnecessary matter (as an ancient statue or finial, a modern tower or portico), or the leaving matter that would, with less labour and equal structural efficiency, have been removed (as a crocket, a bas-relief figure). To confound, therefore (as an excellent critic has done), the terms beauty, decoration, and ornament, is as new and perplexing as if we should confound blackness, blackening, and blacking."

The structural and the decorative excellence must both come through one mind; ornament may be put on afterwards, but the gracing of the structure,—the production of beauty out of usefulness, without waste of means or the use of manual labour to save thought, must be the work of the designer.

"You may have men called engineers, and men called decorators, but neither real engineering nor real decoration (of building) can you ever have, except the same man profess both. For observe, a pile of useful undecorated things, covered with beautiful useless things, is neither right building nor right beautifying. It is right in no sense, for it is not human,—it is no more than a beaver and a monkey could make between them out of old clothes. To be a work of art—to be worthy of humanity—not only must the whole, but also every member, every detail (except ornaments), be a piece of decorated utility. So that every the smallest part (except ornaments) must be designed by some one who is engineer and decorator at once."

Looking, then, for this decoration in all structures, that our works may be distinguished from those of the brute, and finding none of it in modern engineering works, wherein as he maintains the most extravagant expenditure of money,—the employment of mere hand labour

to any amount,—is made to hide want of previous thought and design, he is constant, and violent, and unexceptional in his abuse of these.

"Engineering and antiquarian mimicry," he writes, "are both varieties of the same art, the art of concealing the absence of art. Or rather, the latter is the art of concealing it, and the former that of palming it off by impudence and noise. Both are open abdications of the same human prerogative, both brutish; only that one takes the monkey or parrot, the other the swine for its model. Now it is not, in this latter, the material, or the absence of ornament that disgusts; but simply the absence of design,—the reversal of that quality most admirable in the works of nature, viz. foresight and provision for all contingencies from the first. Architecture, in its progressive times, aimed at the utmost approach to this,—at an excellence the same in kind with that of nature's works, though of course always imperfect in degree; and so did the earliest works called engineering, (Smeaton's, for instance), which are architecture,—far more truly so than Chambers's or any then or now called so. But now engineering works appear to renounce this aim, to be planned just as they proceed, or as difficulties occur to the mind; the design usually impracticable or useless, and every failure cobbled up just as it occurs (either actually, or to the designer's mind, or to other people's); whereas, in a work of art, all the members have so mutually influenced each other's design, that often we cannot discover by inspection any one thing to have been certainly planned before or after another; and if we can, we call this an "afterthought" and a blemish. But the principle of engineering is to be all afterthoughts, from the second thing made or planned to the last. And this, its exact contrary to design or art, as well as its expression of unparalleled, unbounded, self-sparing,—unchecked power and will to waste any amount of others' labour for the least of the designer's own, is what must render our great iron structures ever painful and humbling to behold, like the pyramids of enslaved Ham,—ghastly blot permitted on our planet's face, as monumental warnings to what self-interest in its unalloyed simplicity may bring us."

To a great extent he is right; errors and ignorances have been plastered over with gold: were the works of some of the civil engineers holding high reputation minutely and honestly inquired into, their authors would stand exposed as dunces and jobbers: some of the "triumphs of engineering" are due to little other than the command of unlimited expenditure, uncontrolled power, and the means of trying again, in the event of failure.

Nevertheless, unconditional abuse of a whole class is, in this case, as it must always be, unjust.

The writer says truly, that the ugliness of English brickwork springs from irrationalities in construction, and would disappear, if we would make the various arrangements simply with a view to their material ends.

"These would require the roof to overhang as a cornice, and thus to present a surface of incombustible material alone, which is very easy, though never attempted; the London roofs being, to avoid it, kept within the building in an absurd manner. The next absurdity is the fenestration, brought to its present state by the window-tax, which has taught us to do with about half or one-third the windows thought necessary in the same latitudes elsewhere. Now the removal of this tax, and of the restrictions on the manufacture of bricks, leaves no pretext for any one of the peculiarities that have made our fenestration so unique in ugliness; viz. narrowness of openings, excessive width, irregular positions not over each other, extreme shallowness, and the sinking or cracking square top. Even supposing habit to shut our dwellings against more light, or more quantity of window area, it ought to be divided among twice as many apertures. Of course, under a tax regulated by their number, not their quantity, it was expedient (though constructively absurd) to make them few and wide; but otherwise, every object, whether the equable diffusion of light in the room, or of strength in the wall, requires them just the reverse, numerous and narrow. Hence even the temple windows of all real architecture (which, like everything about a temple, were properly enlarged beyond the same features in a dwelling), are yet, if not actually narrower, far narrower in proportion to their height than ours.

This applies to all old windows, Greek, Roman, Byzantine, or Gothic, not indeed equally, but increasingly, as art improved."

The increased number of windows and their more graceful proportions would improve the exterior, he continues,—

"But this is not all; the number of openings being no longer restricted, there is no reason for getting the utmost light from each, and therefore no reason for a square top fitting the ceiling;—all limitations of antiquated or infant art (as of grotesque openings, after the invention of the arch, for instance,) being barbarous and spah. The forms proper for window-arches are the semicircular, the segmental (of not less than a quadrant), the pointed in any proportion lower than equilateral, the segmental pointed (or castle arch), the three-centred and four-centred pointed (each in any proportion lower than equilateral), and the round or pointed trefoil arch; all except the two last being producible with one, or at most two, wedge-shaped bricks, without cutting, except to accommodate their tops to the courses of the wall. Thus we have plenty of scope for more variety than those spurning utilitarian fetters seem ever to have developed."

His assertion that the use of girders to support a cross partition, over an undivided room below is "wholly indefensible and inexcusable under any circumstances whatever, or in any materials," seems to us untenable. The writer says,—

"Indeed, the subjecting lengthy bars or beams, or any masses longer than twice or thrice their depth, to a cross-strain or any force tending to bend them, is (except in the unavoidable cases of flooring-boards and their immediate bearers) at once too unnatural to occur to barbarous builders, and too impracticable to be palmed off on any civilized community not blinded by excessive sophistication; and we owe the appearance of such things (unknown till the last few years) solely to a school of self-styled "engineers," that seem to expect the world to believe rude and artless shifts become prodigies of science by a mere change of their material; that skill is shown in getting made in iron, things too rude and skillless to stand in weaker, or to be tolerated in more familiar materials; and that because its strength and stiffness enable it to retain almost any form, the produce of Colebrook Dale furnaces is not only a substitute for brains, and to do their work, but they do get the credit of it."

What should we say, he writes, of a beam of stone, in any rude antiquity, ten or twenty times its depth, supported only at the ends, and loaded somewhere between them with a wall or column? and yet engineers would persuade us that in iron such an arrangement is allowable. And why not? We can be quite certain that the iron will perform its duty efficiently, just as efficiently as the "tied arch," which the author proposes to substitute: and why should we not avail ourselves of the convenience it offers? It is no argument against the employment of girders, to say that the tendency of the material in that position is to break. The tendency of joists is to break; the tendency of the brick walls which carry them, is to crush; but we know they will not, because we shall not put sufficient weight upon them to bring this about.

The whole "copyism question" he finds resolved by the one formula of Mr. Ruskin,—

"That all ornament is base which takes for its subject human work, that it is utterly base,—painful to every rightly-toned mind, without perhaps immediate sense of the reason; but for a reason palpable enough when we do think of it. For to carve our own work, and set it up for admiration, is a miserable self-complacency, a contentment in our own wretched doings."

He thinks it makes clear,—

"How a form that is beautiful on an old building might, when exactly copied, be base and odious,—how what is lovely on Westminster Abbey might be grossly vulgar on Westminster Palace, or what is grand on the Parthenon be ridiculous on a Philadelphia bank. If a person did not see that the same form which on the old work evinced a man's mind, on the new evinced a monkey's, he had nothing more to say, no common standing-